

## SUMMARY

This research was carried out in the area of the town Yahuarcocha located in Imbabura province, Ibarra canton, El Priorato parish, at 2.227 m above sea level with a yearly average temperature of 16°C, relative humidity of 65% and a yearly average precipitation of 632 mm.

The research was carried out during the months July 2005 to January 2006 with the objective to determine which is the best amount of sediment which should be added to the soil to achieve the highest yields of strawberry (*fragaria spp*) and to perform a financial analysis of the utilization of this sediment.

The study factor was the sediment extracted from Yahuarcocha Lake applied in different percentages referring to the soil (0, 20, 40, 60, 80, and 100%) being six treatments in total.

The complete at random block design was used with five repetitions, the total area of the experiment was 236,65 m<sup>2</sup>, each of the five blocks was 0.90 cm broad and 20.50 m long and 0.30 cm high. with six experimental units each. They were 0.90 m broad and 3.0 m long, separated from each other by 0.50 m. 30 units of strawberry offsets in each experimental unit.

The evaluated variables were: days until flowering, days until fructification, days until the ripening of the basal fruits, days until the harvest, total yield and the quality of the fruits which were statistically analysed under the experimental design of complete at random blocks for the evaluated varieties in which the notable difference between the treatments was determined. The Orthogonal

polynomials proof (P.O.) was used in order to determine the trend model in which the treatments were applied as well as the Tukey proof at 5%.

The results obtained in this research are the following:

Notable differences were found referring to the days until flowering, being the best treatment T1 (soil without sediment), promoting a quick recuperation from transplantation accelerating the flowering of the offsets, 32 days in average. The treatments were applied to the quadratic model with a correlation coefficient of  $r=0.913$  being notable at 1%.

There was no notable difference detected referring to the time from the flowering of the offsets until their fructification as well as in the time from fructification until the ripening of the first fruits.

For the fruit quality it was determined that with the utilization of T1 (soil without sediment) the best strawberry fruit production type extra was achieved with 1502.48 kg/ha while with T4 (60% sediment and 40% soil) the best strawberry fruit production type I and II was achieved with 5002.38 kg/ha . With this treatment, the highest yield of strawberry fruits type III with 3021.84 kg/ha was achieved as well.

Referring to the total yield, the highest production was obtained with T4 (60% sediment and 40% soil) with 9364.24 kg/ha achieved during the period of four months presenting notable differences to the rest of treatments, while the lowest yield was obtained with T1 (soil without sediment) with 6740.62 kg/ha.

The financial analysis determined T4 (60% sediment and 40% soil) as the most profitable option with a minimum return quote (TAMIR) OF 77.09%.

It was concluded that the added sediment altered the physical and chemical features of the soil. It was also concluded that the sediment added to the soil affected the strawberry production (*Fragari spp*)

For this kind of soils, a mixture of 60% sediment and 40% soil is recommended. Follow-up studies to this work are recommended, taking into account intermediate levels of the studied ones and with the utilization with a low content of nutrients or in eroded soils.